

Claims

What is claimed is:

- 5 Sub 1. A construction panel comprising:
- a plurality of peripheral frame members defining a rectangular frame;
- a plurality of stud members extending from a first portion of the rectangular frame to an opposite second portion of the rectangular frame, parallel to at least one edge of the rectangular frame, and defining spaces within the rectangular frame;
- 10 a first surface covering layer substantially covering a first surface defined by the rectangular frame; and,
- a second surface covering layer substantially covering a second surface defined by the rectangular frame opposite the first surface;
- 15 wherein the rectangular frame accommodates fasteners for attaching the construction panel to adjacent structures.
2. The construction panel of claim 1, wherein the construction panel is pre-approved for compliance with building standards in at least one jurisdiction.
3. The construction panel of claim 1, wherein the first portion of the rectangular frame is a lower portion and the second portion of the rectangular frame is an upper portion, whereby the construction panel defines a wall section.
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4. The construction panel of claim 1, wherein the first portion of the rectangular frame is a wall-engaging portion and the second portion is a support engaging portion, whereby the construction panel defines a roof section.

5. The construction panel of claim 1, wherein the first portion of the rectangular frame is a support engaging portion and the second portion is a support engaging portion, whereby the construction panel defines a floor/ceiling section.

6. The construction panel of claim 1, wherein the plurality of peripheral frame members and plurality of stud members are of sufficient material strength and frequency to provide a load bearing structure for at least one adjacent building structure.

7. The construction panel of claim 1, further comprising a plurality of framing members for defining an opening in the plurality of stud members and wherein a window, door, or skylight is preinstalled in the opening.

8. The construction panel of claim 1, further comprising a surface device and internal connection conduit for a building subsystem preinstalled in the construction panel.

9. The construction panel of claim 1, further comprising a plurality of plates and fasteners for attaching the construction panel to an adjacent building structure.

10. The construction panel of claim 1, wherein the rectangular frame is approximately four feet wide from a first lateral edge to a second lateral edge.

11. The construction panel of claim 1, wherein the construction panel weighs less than _____ pounds.

12. A method of using prefabricated construction panels comprising the steps of:

5 preparing a pre-existing building to accommodate at least one prefabricated construction panel;

placing a first prefabricated construction panel adjacent a building structure that defines a portion of the pre-existing building;

10 attaching the first prefabricated construction panel to the adjacent building structure; and,

covering a seam defined by a surface covering layer of the first prefabricated construction panel and the adjacent building structure.

13. The method of claim 12, wherein the first prefabricated construction panel comprises a plurality of peripheral frame members defining a rectangular frame, a plurality of stud members extending from a first portion of the rectangular frame to an opposite second portion of the rectangular frame, and at least one surface covering layer substantially covering a surface defined by the rectangular frame.

14. The method of claim 12, wherein the step of attaching the first prefabricated construction panel to the adjacent building structure includes locating a plate and attaching the plate to the first prefabricated construction panel and the adjacent building structure using fasteners.

15. The method of claim 12, further comprising the steps of attaching a sill to a base structure that defines a portion of the pre-existing building and attaching the first prefabricated construction panel to the sill.

16. The method of claim 12, wherein the step of preparing the pre-existing building includes creating an opening in a portion of the existing building of a height and width substantially equal to a height and width of the first prefabricated construction panel and wherein the step of placing includes locating the first prefabricated construction panel within the created opening.

17. The method of claim 12, wherein the step of placing the first prefabricated construction panel includes placing the first prefabricated construction panel within an interior space defined by the pre-existing building.

18. The method of claim 12, further comprising the step of placing a plurality of prefabricated construction panels adjacent the first prefabricated construction panel and interconnecting the plurality of prefabricated construction panels and the first prefabricated construction panel.

19. The method of claim 12, wherein the first prefabricated construction panel includes a portion of a building subsystem, and further comprising the step of interconnecting connecting a plurality of portions of the building subsystem.

20. A panelized construction system with integrated wire-based subsystems comprising:

a surface device for a wire-based subsystem built into at least one construction panel;

a junction box within the construction panel and electrically connected to the surface device; and

a guide conduit within the construction panel and extending from the junction box to an edge of the construction panel, whereby a connecting wire for the wire-based subsystem may be inserted in the guide conduit and electrically connected to the surface device through the junction box.

21. The panelized construction system of claim 20, further comprising a sill member engaging the construction panel and a base structure and defining a channel for accommodating at least a portion of the connecting wire.

22. The panelized construction system of claim 20, wherein the construction panel defines an opening for accessing the junction box.

23. The panelized construction system of claim 20, wherein the surface device is a switch and further comprising an electrical fixture electrically connected to the switch.

24. The panelized construction system of claim 20, wherein the surface device and junction box include an electrical box, and a plurality of connecting wires include a source wire and at least one connecting wire for electrically connecting to other construction panels.

25. The panelized construction system of claim 20, wherein the surface device and junction box include a subsystem control hub, and a plurality of connecting wires electrically connect to other construction panels.

26. A method of installing a panelized construction system with integrated wire-based subsystems comprising the steps of:

5 positioning a construction panel including a surface device for a wire-based subsystem;

fixing the construction panel in place;

running a connecting wire to the construction panel;

10 electrically connecting the connecting wire to the surface device through a junction box within the construction panel; and,

electrically connecting the connecting wire to a source for the wire-based subsystem.

27. The method of claim 26, wherein the connecting wire is electrically connected to the source through a junction box of another construction panel.

28. The method of claim 26, wherein the step of running the connecting wire to the construction panel includes inserting the connecting wire into a guide conduit at an edge of the construction panel.

29. The method of claim 26, wherein the step of running the connecting wire to the construction panel includes placing the connecting wire in a channel defined by a sill adjacent the construction panel.

30. The method of claim 29, further comprising the step of attaching a cover over the channel defined by the sill after the connecting wire is placed.

31. The method of claim 26, further comprising the step of junction access, electrical box, communication hub

5 32. A panelized construction system with an integrated mechanical subsystem comprising:

cont. a
a first conduit for a mechanical subsystem built into a first construction panel and extending to a first edge of the first construction panel;

10 a surface device for the mechanical subsystem built into the first construction panel and functionally connected to the first conduit; and

a source for the mechanical subsystem functionally connected to the first conduit at the first edge of the first construction panel.

15 33. The panelized construction system of claim 32, wherein a plurality of additional construction panels each include an additional conduit and the additional conduits are functionally connected with the first conduit of the first construction panel and the source for the mechanical subsystem.

20 34. The panelized construction system of claim 32, further comprising a second construction panel with a second conduit extending to a second edge of the second construction panel and wherein the second construction panel is positioned adjacent the first construction panel such that the first conduit and second conduit are

functionally connected where the first edge of the first construction panel meets the second edge of the second construction panel.

35. The panelized construction system of claim 32, further comprising a second conduit for the mechanical subsystem within the first construction panel, extending to the first edge of the first construction panel, and functionally connected to the source.

36. The panelized construction system of claim 32, wherein the source for the mechanical subsystem is an HVAC unit.

37. The panelized construction system of claim 36, wherein the source for the mechanical subsystem is an outdoor unit and includes a second conduit functionally connected to the outdoor unit and the first conduit of the first construction panel.

38. The panelized construction system of claim 32, wherein the first conduit of the first construction panel extends to a second edge of the first construction panel.

39. A method of installing a panelized construction system with integrated mechanical subsystems comprising the steps of:

positioning a first construction panel including a surface device for a mechanical subsystem and a first conduit from the surface device to an edge of the first construction panel;

fixing the construction panel in place;

engaging a second conduit to the first conduit at the edge of the first construction panel, whereby the second conduit functionally connects the first conduit to a source for the mechanical subsystem.

40. The method of claim 39, further comprising the steps of positioning and fixing a plurality of adjacent building panels and engaging a plurality of conduits at the edges of the plurality of adjacent panels to functionally connect the conduits to the source for the mechanical subsystem.

41. The method of claim 39, wherein the construction panel includes a plurality of conduits, each conduit extending to the first edge, and further comprising the step of engaging a plurality of other conduits to the construction panel conduits at the first edge to functionally connect the construction panel conduits to the source for the mechanical subsystem.

42. The method of claim 39, wherein the second conduit is preinstalled in an exterior construction panel and the second conduit extends to an outside source for the mechanical subsystem.

43. A panelized construction system for a commercial or industrial building module comprising:

a plurality of prefabricated wall panels;

a plurality of prefabricated roof panels;

a plurality of fasteners for attaching adjacent wall and roof panels to one another; and,

a building module configuration defining placement and attachment
of the plurality of wall panels and the plurality of roof panels.

44. The panelized construction system of claim 43, wherein the plurality of wall
panels include external wall panels comprising a frame, insulation, an interior
5 surface covering material, and a first exterior surface covering material.

45. The panelized construction system of claim 44, wherein the external wall
panels further comprise a second exterior surface covering material.

46. The panelized construction system of claim 43, wherein the plurality of wall
panels include internal wall panels comprising a frame, a first surface covering
10 layer disposed on a first side of a frame, and a second surface covering layer
disposed on a second side of the frame.

47. The panelized construction system of claim 43, wherein the plurality of wall
panels and plurality of roof panels are pre-approved for compliance with building
standards in at least one jurisdiction.

48. The panelized construction system of claim 43, further comprising a
15 plurality of floor panels.

49. The panelized construction system of claim 43, further comprising a
plurality of ceiling panels.

50. The panelized construction system of claim 43, wherein the plurality of wall
20 panels include a pre-installed bearing ledger.

51. The panelized construction system of claim 43, further comprising a mechanical building subsystem pre-installed in at least one of the wall panels or roof panels.

5 52. The panelized construction system of claim 43, further comprising a wire-based building subsystem pre-installed in at least one of the wall panels or roof panels.

53. The panelized construction system of claim 43, further comprises panelized exterior features.

10 54. The panelized construction system of claim 43, wherein the building module configuration defines a plurality of modular bays.

55. A method of constructing a commercial or industrial building module comprising the steps of:

preparing a base structure according to a building module configuration;

15 positioning a plurality of wall panels above the base structure;

attaching the plurality of wall panels to the base structure;

attaching each of the plurality of wall panels to an adjacent wall panel;

20 positioning a plurality of roof panels above the wall panels; and,

attaching the plurality of roof panels to the at least a portion of the plurality of wall panels.

56. The method of claim 55, further comprising the steps of positioning a plurality of floor panels and attaching the floor panels to at least a portion of the plurality of wall panels.

5 57. The method of claim 55, further comprising the steps of positioning a plurality of ceiling panels and attaching the ceiling panels to at least a portion of the wall panels.

58. The method of claim 55, wherein the plurality of wall panels include a plurality of first story wall panels and a plurality of second story wall panels, the plurality of first story wall panels are attached to the base structure, and the
10 plurality of second story wall panels are attached to at least a portion of the first story wall panels.

59. The method of claim 55, wherein some of the wall panels or roof panels include a portion of a pre-installed mechanical subsystem and further comprising the step of connecting the portions of the pre-installed mechanical subsystem.

15 60. The method of claim 55, wherein some of the wall panels or roof panels include a portion of a pre-installed wire-based subsystem and further comprising the step of connecting the portions of the pre-installed wire-based subsystem.

61. The method of claim 55, further comprising the steps of positioning a panelized exterior feature and attaching the panelized exterior feature to the wall
20 panels or the roof panels.